

May 29, 2018

Mr. John Hickman
U.S. Nuclear Regulatory Commission
11545 Rockville Pike
Mailstop T8F5
Rockville, MD 20852

SUBJECT: ORISE CONTRACT NO. DE-SC0014664
LETTER REPORT FOR ANALYTICAL RESULTS FOR ONE SOIL SAMPLE
ASSOCIATED WITH THE HUMBOLDT BAY POWER PLANT IN EUREKA,
CALIFORNIA
[CAC NO. 000083/05000133/L-2017-LNS-0008] [DOCKET NO. 50-133]
(RFTA NO. 18-001) DCN: 5311-LR-02-0; SDG: 13283-2

Dear Mr. Hickman:

The Oak Ridge Institute for Science and Education (ORISE) is pleased to provide the attached data package for one soil sample received on May 3, 2018 from the Humboldt Bay Power Plant in Eureka, California. The sample was received in good condition.

The sample was analyzed for the gamma-emitting isotopes Co-60, Nb-94, Cs-137, Eu-152, Eu-154, and Np-237 by gamma spectrometry. The analytical data are presented in the attached reports.

Quality Control (QC) requirements were met for these analyses. The QC files are available for your review upon request.

Please contact me at 865.574.9802 or Erika Bailey at 865.576.6659 with any questions or comments.

Sincerely,

Forrest Smith
Laboratory Team Lead
ORISE


WFS:lw

Attachments

Electronic distribution: T. Carter, NRC R. Browder, NRC
S. Roberts, ORISE E. Bailey, ORISE
D. Hagemeyer, ORISE
File code: 5311 Lab code: 13283

Distribution approval and concurrence:	Initials
Group Manager/Technical Review	WFS
Quality Review	lw Joe PB

APPENDIX A

ORISE Sample Receipt Form				
 OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION				
Client/Task Name: <u>HBPO</u>		Project/Task # <u>201213283 / 5311</u>		
Received by: <u>Wade Ivey</u>		Date Received: <u>5/3/18</u>		
Tracking # <u>129548900297275433</u>		Shipment Identified as foreign soil? (circle) YES / <u>NO</u> If YES, notify the manager before proceeding.		
Estimated Activity Level (circle all that apply): <u>MA</u> / MA / HA Mark any samples with MA or HA activity on the sample container.		Sample Delivery Group Number: <u>13283-2</u>		
Sample Receipt Criteria	Yes	No	N/A	Comments / Qualifiers (Required if receipt criteria marked "No")
Shipping Containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Appropriate sample containers used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are there any special holding times? Rad analysis hold time is 6 months	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sufficient sample volume to perform the requested analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Individual sample containers securely sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chain of custody forms included?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Samples screened with hand-held instruments?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Water Samples at proper pH?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	As Received pH Preservative Matrix (circle) HNO ₃ / HF / HCl
Did water sample require pH adjustment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Amount of acid added Type of acid added (circle) HNO ₃ / HCl / HF Final sample pH
Sample IDs from COC match container IDs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Date and Time from COC match container Date and Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Number of containers received match the number indicated on the COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC form properly signed in the relinquished by/received by section?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Form filled by: Wade Ivey
Date: 5/3/18

P. O. #		Lab: ORAU Chain of Custody and Analytical Request										Page 1 of 1													
Line Item #												Laboratory Number:													
Vendor #												Excavation Permit #													
Client Name: PGE						Phone 707-444-0746						Sample Analysis Requested (5) (Fill in the number of containers for each test)													
Project/Site Name: HBPP						Fax #: 707-444-2671						Should this sample be considered:		Total Number of Containers		Gamma		HTDs (no H-3 or Sr-90)				Preservative Type (6)		Comments Note: Extra Sample is Required for Sample Specific QC	
Address: 1000 King Salmon, Eureka, CA 95503						Contact: Trish Barron																			
Collected by: HBPP						Send Results to: tao0@pge.com						Radio-active		TSCA Regulated											
Sample ID		Date Collected (mm-dd-yy)		Time Collected (hh:mm)		QC Code (2)		Field Filtered (3)		Sample Matrix (4)															
FSS-1403: OOL03-01-020-F-5		4/25/2018		14:29		N		N		SO		N		N		1		X				1-L Marinelli dried			

Page 1 of 1 Project #: 201213283	Project Name: ORAU/ORISE Chain of Custody and Analytical Request Humboldt Bay Power Plant <div style="text-align: right;">COC # : 1805-003</div>	ORAU/ORISE 1299 Bethel Valley Road, Bldg SC-200 Oak Ridge, TN 37831 Phone: (865) 574-9802 Fax: (865) 241-3248						
Client Name: U.S. Nuclear Regulatory Commission Phone # : 301.415.3017 Fax # :								
Address: 11555 Rockville Pike One White Flint North Bldg., MS OWFN 012-G13 Email : John.Hickman@nrc.gov								
Collected By: Client Send Results To: Hickman.John								
Client Sample ID	Date Collected (mm-dd-yy)	Time Collected (military)	Sample Matrix (1)	Field Filtered (2)	ORAU/ORISE Lab Sample ID (Lab Use Only)	Total # of containers	Sample Analysis Requested (3)	Comments
FSS-1403: OOL03-01-020-F-S	04/25/18	14:29	S	No	13283S0013	1	GAMMA SPEC	
Gamma Isotopes: NB94, NB94, PA233, PA233, PA233, PB212, PB214, PB214, RA226, SE75, TH234, TH234, U235, U235, U235, ZN65, AM241, BI212, BI212, BI212, BI214, BI214, CO57, CO57, CO60, CO60, CS134, CS134, CS134, EU152, EU152, EU152, EU154, EU155, EU155, K40, MN54 Alpha Isotopes: LSA:								
TAT Requested: 28 Rush: <u>Fax Results</u> Fax # :								
Chain of Custody Signatures							Sample Shipping and Delivery Details	
Relinquished By (Signed)	Date	Time	Received By (Signed)			Date	Time	ORAU/ORISE PM SmithWilliam Phone # : 865-574-9802
Fed Ex	5/3/2018	2:00:00PM	IveyWade			5/3/2018	2:00:00PM	Method of Shipment: FedEx Date Shipped
EDD Required:		Report Type:		Received in Good Condition:		Yes		Airbill # : 1Z9548900297275433
PEMS Project ID :		PEMS SOW ID:						Airbill # :

- 1) Matrix Codes: **S**=Soil, **W**=Water, **M**=Miscellaneous, **A**=Air Filter, **R**=Smear/Wipe
 2) Field Filtered: For liquid matrices, indicate **-Y-** for yes the sample was field filtered or **-N-** for sample was not field filtered.
 3) If the integrity of the samples and/or sample packaging are in question, provide details in the CoC comment field.

COC Comments:

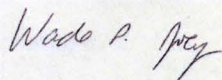
Report Date: May 21, 2018

Project # : 201213283		COC # : 1805-003	
Project Name: Humboldt Bay Power Plant			
Batch Number: GS0707		Analyst: iveyw	
Client Sample ID: FSS-1403: OOL03-01-020-F-S			
Lab Sample ID: 13283S0013	Smp Qty.: 826.12	Units: g	Geometry: LM
Detector ID: DET07	Live Time(s): 3,600	SOP (Rev. #): CP1 (21)	
Count Date: 5/8/2018	Receipt Date: 5/3/2018	Collection Date: 4/25/2018	
SDG: 201213283-2			

Analyte	Energy Signature (keV)	Result	TPU (2s)	MDC	Units	Energy (keV)	Qualifier	Duplicate Error Ratio	Meas./Known Activity Ratio
Am-241	59.54	-0.006	0.020	0.089	pCi/g		U	N/A	N/A
Bi-212	727.33	0.46	0.27	0.59	pCi/g	727.06	U	N/A	N/A
Bi-214	609.32	0.496	0.069	0.088	pCi/g	609.18		N/A	N/A
Co-57	122.06	0.002	0.012	0.028	pCi/g		U	N/A	N/A
Co-60	1332.49	0.017	0.016	0.052	pCi/g		U	N/A	N/A
Cs-134	795.86	0.0003	0.0071	0.0618	pCi/g		U	N/A	N/A
Cs-137	661.66	0.011	0.021	0.047	pCi/g		U	N/A	N/A
Eu-152	344.28	-0.002	0.048	0.104	pCi/g		U	N/A	N/A
Eu-154	723.30	-0.015	0.065	0.221	pCi/g		U	N/A	N/A
Eu-155	105.31	0.040	0.042	0.097	pCi/g	105.43	U	N/A	N/A
K-40	1460.82	11.0	1.0	0.6	pCi/g	1460.57		N/A	N/A
Mn-54	834.85	-0.007	0.022	0.046	pCi/g		U	N/A	N/A
Nb-94	871.09	0.024	0.019	0.047	pCi/g		U	N/A	N/A
Np-237 by Pa-233	311.90	0.018	0.030	0.069	pCi/g		U	N/A	N/A
Th-228 by Pb-212	238.63	0.582	0.052	0.058	pCi/g	238.55		N/A	N/A
Ra-226 by Pb-214	351.93	0.607	0.065	0.074	pCi/g	351.78		N/A	N/A
Ra-226	186.21	1.09	0.33	0.70	pCi/g	185.82		N/A	N/A
Se-75	264.66	-0.001	0.018	0.042	pCi/g		U	N/A	N/A
U-238 by Th-234	63.29	0.61	0.26	0.73	pCi/g	63.12	U	N/A	N/A
U-235	143.76	-0.030	0.094	0.231	pCi/g	143.22	U	N/A	N/A
Zn-65	1115.54	0.004	0.043	0.118	pCi/g		U	N/A	N/A

Electronically Validated By:
Wade Ivey- 5/11/2018 14:15

Electronically Approved By:



Wade Ivey 5/11/2018 14:17

**Smith, William
(Forrest)**

Digitally signed by Smith, William (Forrest)
DN: dc=net, dc=orau, ou=Standard Accounts, ou=UserAccts, cn=Smith, William (Forrest), email=Forrest.Smith@orau.org
Date: 2018.05.29 15:01:06 -04'00'

Qualifier Flags:

U = Analyte not detected (< MDC)

TPU = Total Propagated Uncertainty

MDC = Minimum Detectable Concentration